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AKZO NOBEL INC. LEGAL & IP 120 WHITE PLAINS ROAD, SUITE 300 TARRYTOWN, NY 10591			CHANNAVAJALA, LAKSHMI SARADA	
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/723,341  
Filing Date: November 26, 2003  
Appellant(s): CAO ET AL.

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James Abruzzo  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 11-22-10 appealing from the Office action mailed 6-10-10.

**(1) Real Party in Interest**

The examiner has no comment on the statement, or lack of statement, identifying by name the real party in interest in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The following is a list of claims that are rejected and pending in the application:

1, 2, 8-10 and 27-29

**(4) Status of Amendments after Final**

The examiner has no comment on the appellant's statement of the status of amendments after final rejection contained in the brief.

**(5) Summary of Claimed Subject Matter**

The examiner has no comment on the summary of claimed subject matter contained in the brief.

**(6) Grounds of Rejection to be reviewed on Appeal**

**WITHDRAWN REJECTIONS**

The following grounds of rejection are not presented for review on appeal because they have been withdrawn by the examiner.

Claims 1, 2, 8-10 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4085264 to Seib et al (Seib) in view of US 4,172,122 to Kubik et al (Kubik).

**The following rejection has been presented for review of Appeal:**

Claims 1, 2, 8-10 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6221389 to Cannell et al in view of US 4085264 to Seib et al (Seib) and US 4,172,122 to Kubik et al (Kubik).

**(7) Claims Appendix**

The examiner has no comment on the copy of the appealed claims contained in the Appendix to the appellant's brief.

**(8) Evidence Relied Upon**

4,172,122	Kubik et al.	10-1979
6,221,389	Cannell et al.	4-2001
4,085,264	Seib et al	4-1978

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

Claims 1, 2, 8-10 and 27-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6221389 to Cannell et al in view of US 4085264 to Seib et al (Seib) and US 4,172,122 to Kubik et al (Kubik).

Instant claims recite wherein the acrylate copolymer comprises from about 38% to about 48% butyl acrylate, from about 39% to about 49% methyl methacrylate, and from about 8% to about 18% methacrylic acid, by weight of the copolymer.

Cannell teaches a hair care composition comprising an aqueous carrier and water insoluble materials (abstract, col. 3, L 25+). The composition is useful for hair, skin or eyelashes etc. For the water insoluble polymers, Cannell teaches that the polymers are unneutralized or partially neutralized (col. 7, Lines 33-40) and suggests specific polymers such as Luvimer 36D (col. 8, L 33-35), more particularly made of the monomers recited in claim 1. Cannell shows good hair curling and fixing properties with unneutralized polymers as well as partially neutralized polymer. Example 22 of Cannell is directed to a mascara composition, the preparation of which employs acrylate polymer reads on an emulsion. For the claimed anionic surfactant, Cannell teaches compositions with the above polymers in the form of shampoos, wherein the shampoo contains claimed anionic surfactant (example in col. 16 through col. 17).

Cannell is silent with respect to the claimed percentages of the individual monomers of the polymer.

Seib teaches copolymers of acrylic acid, methacrylic acid and methacrylic acid esters and their use in hair care composition. The acrylate polymers of the copolymer are described as follows:

ing effect, can be combed out without difficulty.

We have found, surprisingly, that this object is achieved by the process according to the invention, i.e. in a process for the manufacture of copolymers by copolymerizing acrylic acid or methacrylic acid with 4 esters of acrylic acid and methacrylic acid in the presence of free radical-forming initiators, wherein the improvement comprises copolymerizing — based on total weight of monomers

(a) from 45 to 80% of methyl methacrylate, 5

(b) from 10 to 30% of one or more alkyl acrylates where alkyl is of 3 to 12 carbon atoms and

(c) from 10 to 25% of acrylic acid and/or methacrylic acid at from 140° to 300° C and at from 2 to 50 bars.

In particular, Seib teaches butylacrylate as one of the copolymer (see col. 2, L 1) and the various amounts of the individual polymers that make up the copolymers are described in examples 1-3 polymers in col.3, L 5-42.

Seib fails to teach the exact percentages of the claimed polymers, particularly with respect to butyl acrylate. Seib teaches lower amounts of butyl acrylate i.e., 10-30% whereas instant claim recites 38% to 48%. However, instant claims recite “about 38% to 48% of butyl acrylate”, where the term “about” has not been defined. Seib teaches 45-80% methyl methacrylate and 10-25% methacrylic acid, which overlap with instant percentage of methyl methacrylate and acrylic acid respectively. Further, Seib does discuss prior art copolymers with equal amounts of methacrylic acid ester and methyl methacrylate (col. 1, L 55-62, German published application DAS 2,161,909). Seib also states that while prior art copolymers with higher than 40% of methyl methacrylate and methacrylic acid esters were thought to be alcohol-insoluble and not good for film

forming properties, it was discovered that such high amounts can still yield alcohol solubility and also excellent film forming properties. According to Seib the polymers are not completely neutralized and low degree of neutralization is advantageous for less tackiness of hair (col. 5, L 15-20). While Seib teaches application of the polymer in hair care, Seib does not specifically recite the polymer as an emulsion.

Kubik teaches a water resistant sunscreen composition comprising an oil-base, at least water-insoluble ultraviolet light absorbing materials which is soluble in the oil base, and a water insoluble acrylate polymer having a solubility parameter of 6 to 10 in weak hydrogen bonding solvents. The acrylate polymer serves to bind the UV light absorber to the skin and render it resistant to removal by water. Kubik teaches that the acrylate polymers are film forming and act as emulsifying components (col. 2, l 37-47). Kubik teaches adding water to the polymer containing compositions to prepare emulsions. In order to be useful as emulsifiers, Kubik teaches that the polymer is made of acrylic acid monomers and alkyl ester monomers of acrylic acid (col. 3, L 20-col. 4, L 63). According to Kubik the soluble polymers include alkyl esters of 6 to 18 carbon atoms and exclude lower alkyl esters, implying that the lower alkyl esters impart insoluble characteristics to the composition; and the presence of carboxylic acids imparts removability of the composition with soap and water. Kubik teaches addition of polymer to the oil phase (col. 4, L 65-67). Kubik also teaches that the polymers may be prepared by any of the standard bulk, solution or emulsion polymerization, with latter two being preferred (col. 4, L 29-41). The example compositions of Kubik also contain additional surfactants.

It would have been obvious for one of an ordinary skill in the art at the time of the instant invention was made to employ the acrylate polymers of Seib in the composition of Cannell, as emulsifiers in preparing emulsion compositions and also impart effective film forming and hold to hair because Seib teaches the polymers having a monomer distribution that is similar to that claimed for effective film forming and Kubik teaches that the acrylate polymers made from monomers of acrylic acid and its alkyl esters are effective film formers and also act as emulsifiers. Accordingly, a skilled artisan would have been able to prepare the acrylate polymers of Seib by optimizing the percentages of individual monomers such as alkyl acrylate, acrylic acid etc., depending on the solubility, washability with water, dispersibility desired, and include them in the composition of Cannell with an expectation to provide style and hold to the hair curls. In addition, a skilled artisan would have prepared acrylate film forming polymers of Seib by employing any of the known methods such as standard bulk, solution or emulsion polymerization, with the latter being preferred because a skilled artisan would have understood that according to Kubik the film forming properties and emulsifying properties are unaffected by the method of preparation.

With respect to the limitations of sun care and skin care composition of claims 8 and 10, Cannell teaches terpolymers of acrylate for hair and skin, Seib teaches for hair and Kubik teaches the polymers for skin care. Thus, a skilled artisan would have employed the polymer of Seib for skin as well as hair care application. The claimed compositions do not recite any other components other than the polymer. Additionally, a hair care composition can simultaneously function as a sun care composition because



Cannell teaches terpolymers of acrylate for hair as well as skin care and Kubik teaches for sunscreen. With respect to the limitation that the claimed polymer is a copolymer emulsion (claim 1) or a polymer-in-water emulsion, Seib teaches that the polymer may be prepared by emulsion polymerization as well as other methods and thus one of an ordinary skill in the art would have prepared the polymer of Seib as an emulsion in the composition of Cannell and still achieve the film forming effect.

#### **(10) Response to Argument**

Appellants' argument regarding the rejection of claims 1, 2, 8-10 and 27-29 as being unpatentable over Seib in view of Kubik is moot since the rejection has been withdrawn. Appellants' arguments with respect to Seib and Kubik references will be addressed in light of the combination of the teachings of Cannell et al, Seib et al and Kubik et al.

Appellants argue that the instant polymer is an emulsion as supported by the disclosure on page 3, L 31-32; page 5, lines 32-34 and example 3.

Appellants submit that Cannell is being asserted as teaching aqueous carrier systems based on organic phospholipids capable of forming bilayers in aqueous solutions, nonionic surfactants, and amphoteric surfactants, wherein the carrier systems allow water-insoluble polymers to be incorporated into aqueous solutions (col. 1, lines 12-18), and argues that the Office acknowledges, however, that Cannell does not teach the claimed polymers and their water proofing or film forming effect. It is argued that Cannell does not make up for the deficiencies of Kubik et al or Seib et al. It is argued

one can imply from the teachings of Kubik that the method of preparation does not affect the film forming or emulsifying properties of the polymer. Therefore, according to applicants, one skilled in the art looking at the general teachings of Kubik (where there is no preference for one method of preparing polymers over the other) would not prepare polymers of Seib by emulsion method than that suggested by Seib itself because there appears to be no need for the polymer of Seib to be modified by the Kubik. Applicants argue that the references do not recognize the advantage of using the claimed polymer in a personal care composition without any additional processing. It is argued that acrylate copolymer emulsion as claimed by Appellants is particularly beneficial because it provides a water proofing effect to the personal care composition, and these acrylate copolymer emulsions are more readily incorporated into the water (continuous) phase of personal care compositions without the need for any additional processing.

Appellants' arguments are not persuasive because instant rejection explains that Cannell teaches acrylate terpolymers made of ethylacrylate, methacrylic acid and t-butyl acrylate for hair style holding effect and have washable properties. The example 22 of Cannell directed to a mascara composition and employs the acrylate polymer, which reads on an emulsion. The only difference between instant claimed polymer and that of Cannell is the percentages of monomers, for which the rejection relies on the teachings of Seib. One of an ordinary skill in the art would obtain good hold for hair curls and also rinse off the polymer without leaving any build-up (col. 8) with the acrylate polymers of Cannell. Further, Cannell teaches incorporating the polymers in the compositions in

amounts up to 60% (col. 8, L 38-41) and example 22. Appellants have not shown that the amounts of acrylate polymers taught by Cannell do not provide any water proofing effect. On the other hand, the instant rejection is made over a combination of references and not Cannell alone. In this regard, appellants admit that Seib and Kubik teach the film forming properties of acrylate polymers. The acrylate polymer of Seib differs from the instant claimed polymer only in the percentages of butylacrylate monomers. While instant claims recite "about 38% to about 48%", Seib teaches 10% to 30%. However, the term "about" has not been defined in the instant application and accordingly encompasses 30% butacrylate monomer taught by Seib. In this regard, appellants have not shown any unexpected advantage of 38% butacrylate monomer as opposed to 30% monomer. Further, Kubik teaches acrylate polymers that are made of 75% -95% alkyl esters (of acrylic acid and methacrylic acid together) and 5% to 25% acrylic acid monomers (see col. 4, l 3-27 & tables in col. 13-14). Thus, the claimed acrylate polymers comprising acrylic acid, butacrylate and methyl methacrylate are known in the art and are employed in cosmetic compositions for their film- forming ability.

With respect to the method of preparing the polymer, Kubik teaches acrylate polymers can be prepared by various methods and that emulsion and solution polymerization methods are preferred (col. 4, l 29-40). Thus, in contrast to appellants' argument, Kubik prefers solution as well as emulsion polymerization over bulk polymerization. In this regard, appellants have not provided any unexpected advantage of preparing acrylate polymer by emulsion polymerization compared to other methods. Additionally, Kubik teaches that the polymer imparts water resistance property to the

sunscreen cosmetic product. Accordingly, a skilled artisan would have recognized the utility of acrylate polymers in hair as well as skin care products (Cannell), where the polymers form effective films (Seib and Kubik), when prepared by emulsion or solution polymerization. Appellants argue that according to the specification, at page 3, lines 31-32, the acrylate copolymer is typically provided in the form of an emulsion which is a thin, non-viscous liquid as a 45% polymer-in-water emulsion, which is differentiated from a dry powder form (page 3, line 32-33). It is argued that this is also distinguishable from personal care compositions that are emulsions, such as sunscreen emulsions and sunscreen emulsion sprays. Appellants refer to the instant examples that illustrate the use of, for example, Dermacryl® AQF polymer, which is described as an acrylates copolymer, 45% active polymer-in-water emulsion. (See page 5, lines 32-34), where Dermacryl® AQF polymer emulsion was added as an ingredient to an emulsion spray sunscreen. Accordingly, Appellants submit that when read in light of the teachings of the specification, personal care compositions in the form of emulsions are different from acrylates copolymer emulsions.

Appellants' arguments are not persuasive because if the instant copolymer emulsion is obtained by emulsion polymerization, then Kubik not only teaches bulk and solution polymerization, but also emulsion polymerization process. Thus, it would have been obvious for one of an ordinary skill in the art to prepare acrylate polymers of Seib by emulsion polymerization, so as to prepare polymer emulsion and incorporate in the compositions of Cannell. On the other hand, instant claims are drawn to a product and not a process of preparing the polymer. Even though product-by-process claims are

limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Furthermore, Appellants also admit in their specification (page 3, line 32-33) that the polymer may be employed in an emulsion or a dry form; and do not show an advantage of employing an emulsion form over that of a dry powder form. On the other hand, one of ordinary skill in the art would have recognized from the teachings of Kubik and also Seib that the acrylate polymer is capable of forming a film, irrespective of the method of preparation.

Appellants argue that Kubik teaches away from the incorporation of alcohol soluble polymers of Seib. Appellants argue that oil films of Kubik do not render the polymers of Kubik dispersible. It is argued that the Kubik teaches alkyl esters of 6 to 18 carbon atoms and exclude lower alkyl esters. However, the argument is not persuasive because the teachings of Kubik have been cited only to show acrylate polymers can be prepared by several methods such as emulsion polymerization and not for incorporating the polymers of Kubik in the teachings of Seib et al or of Cannell et al. The present rejection does not rely on the teachings of Kubik for lower alkyl esters because as explained above Seib teaches butyl acrylate and for the amounts of the esters, suggests 30% (upper limit). With respect to the argument that instant claimed

composition does not require additional processing unlike that of Seib and Kubik, instant claims are not limited to a process of preparation and instead are directed to a product. However, the instant "comprising" language allows for additional components and hence does not exclude additional steps.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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